

## **REMARKS**

Applicants respectfully traverse and request reconsideration.

Claims 1 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Potter et al. (U.S. Patent No. 6,734,860) in view of Junkins (U.S. Patent No. 6,674,433). The Potter reference is directed to an apparatus for providing video driving circuitry from various types of digital to analog converters (DACs). In particular, Potter teaches a first conversion module and a second conversion module that converts graphical data streams in a first format to a second format. By way of example, a conversion module may apply gamma correction operations to a graphical data stream, and include a cursor unit that adds cursor data to the graphical data stream and a digital to analog converter for converting digital graphical data streams to analog graphical data streams. In contrast, Applicants claim a completely different method and operation from that described in the Potter reference.

As to claim 1, the office action cites Potter as allegedly teaching each and every claim limitation but admits that Potter does disclose tessellating based on the tessellation level wherein the tessellation level determines a number of component primitives included in the plurality of component primitives. The Junkins reference has been cited for this proposition.

The office action cites to column 4, lines 64-66 and column 5, lines 6-9 as allegedly teaching “tessellating the video graphics primitive to produce a plurality of component primitives, wherein each component primitive of the plurality of component primitives is defined by component vertices having corresponding component vertex parameters, wherein component vertex parameters for each component vertex include a component vertex set of three dimensional coordinates in a component vertex normal vector, wherein the component vertex parameters for each component vertex are derived from at least a portion of the primitive vertex parameters”. However, Applicants respectfully point out that the cited portion does not describe

any of the claim details. In fact although Potter uses the word “tessellation”, it actually uses that term to describe the breakdown of a three dimensional image as into a plurality of initial triangles defined in 3D space. In fact, the “tessellation” described in the cited portion is actually referring to the original incoming primitive vertex parameters as specifically set forth in column 5, lines 4-9. For example, when describing tessellation this portion states “the incoming vertex data for a given vertex preferably includes the x, y and z coordinate data for the given vertex (identify the location of the vertex and 3D space), and the three directional vector components (“normal vectors”) that are perpendicular to the surface of the triangle at that given vertex.” As such, what is being referred to in this section is actually the vertex parameters coming from the CPU 202 through the interface 206 into block 217. The cited portion does not describe, for example, the original primitives being tessellated into a plurality of component primitives as required by the claim and the generation of a component vertex normal vector associated with the component primitives that were produced by tessellating the original primitive vertex parameters. As such, the cited reference fails to teach the claimed subject matter and this claim is in condition for allowance.

In addition, the Junkins reference is directed to adaptively subdividing a subdivision surface by traversing the subdivision surface to locate a target polygon on the surface, partially subdividing the target polygon, re-traversing the subdivision surface to locate a target polygon and additionally subdividing the target polygon. As such, Junkins describes an iterative traversing and partial subdividing of a target polygon. Junkins also fails to teach or suggest producing a component vertex normal vector for each component primitive resulting from tessellation and wherein the tessellation is based on the tessellation level as the cited portions of Potter do not appear to describe such an operation. Instead the cited portion merely indicates

that a butterfly subdivision process is performed based on a midpoint of every edge of a subdivision surface. Accordingly, the claim is in condition for allowance for this reason also.

New claim 28 which is original claim 1 is also believed to be allowable for the reasons set forth above with respect to the Potter reference and since the other cited references also fail to disclose such an operation. The claim is being added in response to considerations from the office action and actual teachings of the cited references.

With respect to claim 20, again Applicants reassert the relevant remarks made above with respect to the Potter reference and as such, the claim is allowable for this reason. In addition, the office action admits that Potter does not disclose “calculating an additional normal vector for each additional vertex of the plurality of additional vertices” yet the office action alleges with respect to claim 1 that Potter teaches producing component vertex parameters from a primitive vertex parameter resulting in, among other things, a component vertex normal vector. As noted above with respect to claim 1, Applicants agree that Potter does not teach such an operation and as such the rejection with respect to claim 1 should be withdrawn. Moreover, as to claim 20, the office action again admits that neither Junkins nor Potter teach among other things “calculating an additional normal vector for each additional vertex of the plurality of additional vertices” (see page 5 of office action). However, since neither of the references teach this operation, the claim is in condition for allowance. In fact, the office action admits that Potter only teaches that there are initial primitives that include the normal vector which correspond to Applicants’ claimed video graphics primitives but the office action admits that neither of the references describe tessellating the primitive further and generating a normal vector for each subsequent vertices resulting from the tessellation. Both of the references that admittedly do not teach the subject

matter when combined cannot also teach the missing subject matter and as such, the claim is in condition for allowance.

Claims 2, 5, 9, 22, 24 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Potter in view of Junkins and further in view of Hochmuth et al. Applicants respectfully submit that the dependent claims add additional novel and non-obvious subject matter. For example as to claim 5, the claim requires, among other things, that the processing includes adding lighting effects to the *pixel data* based on the component vertex normals of the component primitives. The cited portion of Hochmuth, namely column 6, lines 48-54 refer to a different approach. The Hochmuth reference refers to the untessellated vertex and not subsequently tessellated primitive. Also Hochmuth refers to the normal vectors for each of the untessellated vertices to determine color values for each primitive and not as a per-pixel basis as noted in claim 5. Accordingly, this claim is also believed to be in condition for allowance for this reason as well.

Claims 3 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable in view of Potter, Junkins and further in view of Gloudemans. Applicants respectfully reassert the relevant remarks made above with respect to the Potter and Junkins reference and as such these claims are also in condition for allowance.

Claims 4 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable in view of Potter, Junkins and further in view of Owen. Applicants respectfully reassert the relevant remarks made above with respect to the Potter and Junkins reference and as such these claims are also in condition for allowance.

Claims 6-8, 11, 13 and 17-19 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable in view of Potter, Junkins and Hochmuth and in further in view of Peercy et al.

Applicants respectfully reassert the relevant remarks made above with respect to the Potter and Junkins reference and as such, these claims are also in condition for allowance. Also as to claim 11, Applicants again respectfully reassert the relevant remarks made above and as such this claim is also in condition for allowance.

Claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable by Potter in view of Junkins, Hochmuth, Peercy and further in view of Owen. Applicants respectfully reassert the relevant remarks made above and as such these claims are also in condition for allowance.

Claim 16 stands rejected under 35 U.S.C. §103(a) as being unpatentable in view of Potter, Junkins, Hochmuth, Peercy and further in view of Gloudemans. Applicants respectfully reassert the relevant remarks made above and as such these claims are also in condition for allowance.

Applicants respectfully submit that the claims are in condition for allowance and respectfully request that a timely Notice of Allowance be issued in this case. The Examiner is invited to contact the below listed attorney if the Examiner believes that a telephone conference will advance the prosecution of this application.

Respectfully submitted,

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